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ABSTRACT

This paper discusses literacy, language education, language achievement, and bilingual education policies and practices in Japan. The paper first describes the Japanese writing system (consisting of the "kana" and "kanji" scripts) and notes that students typically study English from grade 7 to the first 2 years of college. The paper then addresses the historical background and current practice of language. The paper next notes the lack of an official definition for "literacy"; that various studies have come up with different "illiteracy" rates for Japan; and that Japanese children tend to score better on mathematics tests than students from other countries, but worse on vocabulary and reading comprehension. The paper then addresses language and education, noting that girls are better than boys in kana acquisition, the area in which the children grow up did not make any difference, and that kanji characters are learned easily and can be used to make compound words. The last section (1) notes that the percentage of students who did not read any books steadily increased while the acquisition rate of kanji characters remains high; (2) once students achieve a reasonably fast speed in word coding, its efficiency no longer distinguishes their overall language ability; (3) research suggests that a contextual approach to language teaching should receive more emphasis, especially for those with low language proficiency; and (4) bilingual education has not received much attention in Japan, which is regarded as a monolingual nation. Contains 44 references. (RS)

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A Japanese Perspective on Literacy and Biliteracy:

A National Paper of Japan

for the Reading Research Symposium, 6-7 December 1996, Hong Kong

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1. Languages Used in Japan

Japan is a monolingual country. The Japanese language has been used as an instructional language for school subjects such as social science, mathematics, painting and music. In fact, the name of the school subject in which the Japanese language is taught is "National Language" (/koku go/). Unlike some Asian countries such as India, the Philippines and Singapore, the single language is used for both daily conversation and official activities including those of government, law courts and the education system. Although various dialects exist all over Japan, the standard form of Japanese is well-understood due to the widely-distributed mass media, especially television broadcasts. Many people express concern at the loss of traditional unique expressions in local dialects among younger generations.

The Japanese writing system consists of two types of script, "kana" and "kanji". Kana is further divided into "hiragana" and "katakana". The hiragana script is used for describing grammatical inflections, adverbs and conjunctions whereas the katakana script is mostly used for alphabetic loan-words. Both kana scripts represent the same phonological units known as "morae" (i.e., the smallest sound unit described by kana which is derived from a Latin word meaning "delay" or "space of time"): There is an exact kana-to-mora correspondence (for details, see Leong & Tamaoka, 1995; Maddieson, 1984; Morton & Sasanuma, 1984; Seeley, 1991; Tamaoka, 1991).

Kanji, however, seem very different from a phonologically-based script in two respects: "phonological mapping" and "orthographic complexity". Firstly, unlike an alphabetic script, within kanji, there is no systematic mapping between phonology and orthography. A single kanji commonly has more than one type of pronunciation (for details, see Leong & Tamaoka, 1995; Tamaoka, 1991; Wydell, Patterson & Humphreys, 1993; Wydell, Butterworth & Patterson, 1995), namely an On-reading (derived from the original Chinese sound) and a Kun-reading (derived from a Japanese sound). Within these two types of pronunciations, a single kanji character occasionally has more than one On- or Kun-reading (Tamaoka, submitted). Consequently, kanji do not consistently describe the sounds of the Japanese language.

Secondly, kanji are visually complex figures. Within the 80 kanji taught at Grade 1 in Japanese schools, the number of strokes per character varies from one stroke to twelve strokes. According to the National Language Research Institute (1988), the fewer the kanji strokes, the better Japanese children master a given character. Indeed, Chinese characters with complex orthographic figures are harder to recognize than simple ones (Leong, Cheng & Mulcahy, 1987). Since about 70 percent of the 51,962 words listed in a Japanese dictionary are compound words constructed by two kanji (Yokosawa & Umeda, 1988), teaching the Japanese language focuses upon mastering the reading and writing of kanji as one of the most important instructional goals.

Japanese education follows a 6-3-3 system: 6 years for

elementary school, 3 years for junior high school, and 3 years for senior high school. It is compulsory to complete schooling up to Grade 9. The Japanese language is taught as a school subject throughout Grades 1-12. English is also taught as a foreign language during junior and senior high school (Grades 7-12). According to the educational regulations, students can choose to study a foreign language such as French, German, Chinese and a number of other languages. However, English is dominant since the majority of schools cannot provide instruction of other languages. Over 95 percent of students continue to study in senior high school (Grades 10-12) after completing a compulsory education up to Grade 9. English is, again, exclusively taught as a foreign language at the level of senior high school. English learning/teaching receives major attention during both junior and senior high school, but it is never used as an instructional language to teach other school subjects.

At the university level (for four years), it is typical case, for students to continue to study English for two years as a first foreign language and choose another as a second foreign language, although there is a recent curriculum reform in some universities for students to study only one foreign language, generally English. The popular second foreign languages chosen by Japanese university students are French, German, Chinese and recently Korean. Again, if students wish and if a university can provide courses, they can study two foreign languages excluding English (e.g., Chinese and German, or French and Spanish), but this is not commonly done.

Consequently, English is one of the predominant subjects taught for 8 years from Grade 7 to the second year at university.

2. Language Policy: Historical Perspective and Current Practice

Japanese first encountered the written form of language (i.e., Chinese) around the end of the forth and the beginning of the fifth century (for detail, see Hadamitzky & Spahn, 1981; Kabashima, 1987; Seeley, 1984a; Miller, 1967; Tamaoka, 1991). The earliest written text in Japan which was completed in 712 is "Kojiki" [Records of Ancient Matters]. This text was written in the classical Chinese commonly known in Japan as "kanbun". In Kojiki, kanji are meant to be read according to the system of the Six Dynasties known as "go-on" [go-reading]. From the Nara period (710-794) to the end of the Edo period in 1867, the classical Chinese writing style was used as the official written language, just as Latin was used in scholarly writings in medieval Europe.

Until the Heian Period (794-1192) the Japanese seemed to have no intention of reforming the Chinese writing style to fit the spoken Japanese language. About 1002, "Genji Monogatari" [Tale of Genji], consisting of fifty-four volumes, was written in hiragana by a daughter of Fujiwara Tametoki known as Murasaki Shikibu. In this work, she depicted the court life of the hero Genji, a prince by birth. Genji was surrounded by many talented women but failed to become an emperor. Since hiragana was developed to present sounds of the Japanese langauge in the sequence of Japanese syntax

order, hiragana was very often used to record stories and daily events, especially by women. Early written Japanese was, therefore, mostly developed by intelligent women of the nobility.

Language education in the Edo period (1603-1867) emphasized kanji writing and reading in order to refine the general knowledge of the samurai (soldier) and upper-business classes (Mabuchi, 1983). Thus, until the Meiji Restoration in 1868, the written form of the Japanese language was not an effective means of communication for the general public. The major task of government language reform after the Meiji Restoration was how to simplify the Japanese orthography for effective use.

The major proposals for reforming the Japanese language fell into three categories: (1) replacement of kanji by kana, (2) use of romanization, and (3) use of kana and kanji with restrictions on the number of kanji characters (Seeley, 1984b). In 1866, just two years before the Meiji Restoration, an early proposal of script reform was presented by Hisoka Maejima to the Shogun, suggesting the complete replacement of kanji by kana in order to remove the great barrier of writing and reading kanji for the general public (Twine, 1983). Maejima's proposal later led to the establishment of the Kana Club in 1882 and the Roma-ji Club in 1885, which intended to replace kanji with the phonetic scripts of kana or roma-ji (romanization), respectively. However, the intentions of Maejima and his supporters seemed somewhat drastic in those days, and did not gain official support.

Since 1900, the Ministry of Education has been reforming

Japanese script to simplify the existing writing system. A series of major reforms by the government included limiting the number of kanji in use, and standardizing kana and its usage. All these attempts were, however, pushed back after the Manchurian Incident in 1931, which created a mood of conservatism and nationalism.

The major reform was made after the defeat of Japan in the Second World War. The Allied Force High Command requested that the Ministry of Education limit the number of kanji used in textbooks. After several discussions at the government level, the Touyo Kanji-hyo (a list of kanji for current use) was created in 1946 (Seeley, 1984b). This list, consisting of 1845 kanji, became the standard of kanji learning for compulsory education in Japan (i.e., from Grades 1 to 9). In modern Japanese writing (post-World War II), the three types of Japanese scripts are used for different purposes within the same text. Kanji has continued to represent Chinese loanwords within the outline of the standardization. Hiragana also has continued to describe Japanese inflectional categories. Katakana is now used for presenting the sounds of loanwords from alphabetic languages such as Dutch, English, German, French and Spanish.

3. Literacy and Biliteracy: Definitions and Official Statistics

There is no official definition for "literacy" provided by the Japanese government. The early study on literacy by Makita (1968) claimed that "reading disability" ("Nandokushou" in Japanese) is

found in less than one percent of Japanese children according to his questionnaire survey. This study is, however, not so reliable since there is no clear definition of either "literacy" or "reading disability" in Japan; this was especially true in the 1960's when Makita conducted his survey.

When the term "reading disability" is defined as students who have been functioning at a reading level two grades below their actual grade level, Hirose and Hatta (1988) found that about 10 percent of students fell into this category. It is highly possible that some students in this 10 percent may not be able to comprehend a Japanese text at the functional level (i.e., find necessary information from a context). Therefore, it would be further predicted that some students after completing their compulsory eduction of Grades 1-9 may still fall into the category of "illiteracy" when one sets its definition as an inability to read at a functional level. Again, it is impossible to provide an illiteracy rate in Japan because a study has not been conducted with the purpose of identifying the nation-wide prevalence of "illiteracy" with a clear definition.

On the other hand, various studies (e.g., Lynn, 1977, 1982; Lynn, Hampson & Bingham, 1987; Misawa, Motegi, Fujita & Hattori, 1984; Tamaoka, Saklofske & Ide, 1993) in which non-verbal tests were administered to Japanese children indicated that Japanese children achieved a higher mean non-verbal intelligence score in comparison with American children. Due to these results, people tend to assume that Japanese children have superior cognitive

abilities in every perspective including reading.

In their international study involving children from Japan, Taiwan and the United States (only white middle-class children), Stigler, Lee, Lucker and Stevenson (1982) and Stevenson, Stigler, Lucker, Lee, Hsu and Kitamura (1982) provided an interesting contrast of children's abilities in mathematics, vocabulary and reading comprehension. As shown in Table 1, Japanese children at age 10 achieved better scores in mathematics than those in the United States and Taiwan. This tendency was reversed in the scores of vocabulary and reading comprehension. Since the study of Stevenson et al. (1982) carefully matched word and text difficulties across these three languages, this result must be a reasonable comparison. Furthermore, they found a similar proportion of reading disability among children across the three countries. The educational curriculum in Japan focuses upon mathematics, rather than reading, and it seems that their education

Table 1 *Achievement scores in mathematics, vocabulary and reading comprehension among 10-year-olds in Japan, Taiwan and the United States*

	Mathematics		Vocabulary	Reading
	Girls	Boys		Comprehension
Japan	53.5	53.0	44.5	82.6
	(7.5)	(7.5)	(2.7)	(5.0)
Taiwan	51.0	50.5	48.2	86.1
	(4.9)	(6.4)	(1.1)	(1.0)
United States	43.8	45.0	46.2	84.5
	(5.9)	(6.5)	(4.2)	(4.0)

(*Source*: This table is quoted from Lynn, 1988, p.13. The table was originally created the data from the studies of Stigler, Lee, Lucker & Stevenson, 1982 and Stevenson, Stigler, Lucker, Lee, Hus, Kitamura, 1982)

in mathematics is reflected in higher achievement in non-verbal abilities, but lower achievement in vocabulary and reading comprehension.

English is extensively taught to Japanese students privately at "juku" (tutoring school) and publicly at school. Although the school subject of "English" is always regarded as a major subject at school, the ability of most students to use their knowledge of English for communicative purposes is extremely limited. The majority of Japanese university students cannot verbally produce even a simple sentence like "Could you show me how to get to the train station?" after spending eight years learning English. This is almost certainly due to the fact that English instruction in Japan mainly emphasizes the knowledge of traditional grammar and the skills of translation between English and Japanese.

Poor achievement of English verbal skills among Japanese has introduced a new educational enterprise to Japan, that is, private institutes for English teaching, in which instruction is provided by native English speakers. These English schools are well-advertised everywhere in Japan targeting not only children but also adults. This trend is contradictory, in that although it is a commonly-held understanding that Japanese schools cannot provide proper English instruction to develop communication skills in English, the school system continues to employ a traditional methods of English instruction in order to meet requirements for entrance examinations to Japanese universities.

The achievement level in Japanese reading can be partly judged by the degree of kana and kanji acquisition. As proposed by Makita (1968), kana are easier to acquire due to the nature of exact kana-to-mora correspondence. With only a few exceptions, kana correspond on a one-to-one basis from orthography to phonology, whereas the English alphabet involves many irregularities. Many Japanese children are likely to acquire all kana before entering an elementary school at age 6.

Table 2 *A Comparison of Hiragana Acquisition (Correct Percentage) by Children in Kindergartens between 1967 and 1988*

Number of Subjects		Age	1967 Kinder N=2217	1988 Kinder N=835	1988 Child-care N=367
Reading	46 Hiragana	5	36.8%	43.8%	43.9%
		4	24.4%	34.7%	35.1%
		3	-	14.0%	16.7%
	71 Hiragana	5	53.0%	65.9%	66.1%
		4	33.5%	49.7%	50.3%
		3	-	18.6%	22.5%
Writing	46 Hiragana	5	19.9%	31.6%	35.8%
		4	8.7%	15.9%	19.5%
		3	-	3.7%	4.7%
	71 Hiragana	5	26.0%	44.6%	50.9%
		4	10.8%	20.9%	25.8%
		3	-	4.5%	5.8%

(*Source*: This table is quoted from Shimamura & Mikami, 1994, p.75. The data in 1967 was taken from the National Language Research Institute, 1972, while the data in 1988 was taken from Shimamura & Mikami, 1994. "Kinder" indicates children in kindergartens administered by the Ministry of Education whereas "Child-care" refers to children in child-care centers administered by the Ministry of Health and Welfare.)

According to the study by Shimamura and Mikami (1994), children as young as 5 years have mastered about a half of the kana script. As shown in Table 2, children at age 3 in 1988 were already able to read about 15 percent of the basic 46 hiragana and about 20 percent of the expanded 71 hiragana (consisting of the basic 46 hiragana and 25 variations) and write about 4 percent of the 46 hiragana and about 5 percent of the 71 hiragana. This acquisition rate greatly increases about 50 percent at the age of 5 years. Comparing these figures to the data obtained in 1967, a great improvement over the 21 years was observed, indicating an overall increase of about 10 percent in the hiragana acquisition rate between 1967 and 1988.

The study of Shimamura and Mikami (1994) provides further background information about those children. Children from Tokyo (i.e., urban; M=20.5) and Aichi (i.e., rural; M=24.3) across three age groups in 1988 did not show significant differences in hiragana acquisition, unlike the data in the United States which often indicates that children from urban areas have an advantage in cognitive development (acquisition of reading abilities) over those from rural areas. In line with the results of previous English reading ability (e.g., National Assessment of Educational Progress, 1990; Maccoby & Jacklin, 1974), the data across the three age groups in 1988 showed that girls (M=26.1) were significantly better in hiragana acquisition than boys (M=18.7). In sum, while girls are better than boys in kana acquisition, the area in which children grow up does not appear to make any difference.

The number of kanji which students have to master is specified in each grade by the Ministry of Education as part of the curriculum for the school subject "Japanese language". As shown in Table 3, reading of kanji (either On- or Kun-reading correct) is achieved to an accuracy level of over 90 percent across the six grades. However, writing kanji based on On- or Kun-readings seems to be cognitively more demanding than reading, as indicated by accuracy levels between 57 and 88 percent in Grades 1-6. Because the number of kanji taught in Grade 1 is limited to 76 characters, students in Garde 1 achieve a maximum score of 88.3 percent accuracy. The accuracy of kanji writing decreased up to Grade 5 to a level of 57.6 percent. This decreasing trend may be caused by a re-organization of all accumulated kanji knowledge in the memory.

Table 3 *Kanji Acquisition (Percentage of Correct Responses) by Students in Grades 1-6*

Grade		1	2	3	4	5	6
# of Kanji Taught		76	145	195	195	195	190
Correct Responses	Reading	93.5% (5.5%)	94.9% (4.1%)	93.2% (5.9%)	93.3% (5.5%)	90.6% (7.3%)	92.0% (10.8%)
	Writing	88.3% (8.6%)	75.7% (12.6%)	67.1% (14.7%)	64.1% (14.1%)	57.6% (15.5%)	60.4% (18.4%)

(*Source*: This table is quoted from Fukuzawa, 1995, p. 81. The original data was provided by the National Language Research Institute, 1988. The number of kanji in this table is based on the older "Japanese language" course syllabus. It is now 80 kanji for Grade 1, 160 for Grade 2, 200 for Grade 3, 200 for Grade 4, 185 for Grade 5, and 181 for Grade 6.)

According to the survey conducted by the National Language Research Institute (1988), students in Garde 10 were able to read

97.6 percent of the 996 kanji taught by Grade 6. Pronunciation of the additional 949 kanji taught during Grades 6-9 was also mastered to an accuracy of 74.0 percent by students in Garde 10. The students in Grade 10 had also mastered 86.1 percent of the total of 1945 kanji taught by Grade 9.

A total of 3000 kanji encompass 99.9 percent of printed kanji in Japanese written materials (Kaiho & Nomura, 1983) and about 70 percent of the 51,962 words listed in a Japanese dictionary are compound words constructed by two kanji (Yokosawa & Umeda, 1988). Consequently, one can roughly estimate that 3000 kanji morphemic units are used to create approximately 70 percent of words found in a Japanese dictionary.

Because a relatively small number of kanji morphemes are used to produce compound words, it is relatively easy to guess the meanings of compound words from one's basic knowledge of kanji characters. For example, the English word, "euthanasia" derived from Greek ("eu-" means easy, and "thanatos" means death) is presented by three kanji characters. All there characters are taught by Grade 3: the first kanji meaning "peaceful" is taught in Grade 3, the second kanji meaning "comfort" in Grade 2, and the third kanji meaning "death" in Grade 3. Thus, although not fully comprehending its meaning, Grade 3 students can gain some idea of the meaning of this word by semantically combining the meanings of the three morphemes, "peaceful comfort death".

The advantage of kanji characters is also seen in the technical terms used in sciences. Basic kanji characters are often

used to create various specialized terminologies. In fact, approximately 50 percent of the two- or three kanji compound words used in the textbooks of computer science and electrical engineering for the technical Japanese program at the Massachusetts Institute of Technology, U.S.A. consist of the 500 basic kanji (Kano, 1996) which are taught through 45 lessons (at the rate of one lesson a day) at Tsukuba University, Japan (Kano, Shimizu, Takenaka, & Ishi, 1989). A further 40 percent of the technical compound words contain one of the 500 basic kanji. Thus, only 10 percent of kanji used in all technical words are intermediate or advanced kanji (Kano, 1996). Consequently, the majority of technical words are produced using a small number of basic kanji. The lexical system of kanji morphemes can be seen as a great device through which many compound words used in modern technologies can be constructed and de-constructed. Although reading and writing of a single kanji does not always guarantee the acquisition of kanji-compound words (Fukuzawa, 1995), it seems rather encouraging that students in Grade 10 have mastered over 86 percent of 1945 kanji pronunciations.

5. Research and Action: Issues, Problems and Implications

Despite the high rate of kanji acquisition among Japanese students, there is a surprising survey result shown in Table 4. The percentage of students who did not read any books during the month of May was unexpectedly high (57 percent) among students in

senior high schools in 1988. In elementary schools, this figure was only 10.5 percent. However, it increased greatly to 41.9 percent among students in junior high schools, and continued to increase as at higher grade levels. Comparing the ratios in 1989 to those from the years of 1971, 1979 and 1981, it can be seen that the percentage of students who do not read any books has steadily increased over the past 18 years. This is especially true among students in senior high schools, for whom the figure increased from 41.2 percent in 1971 to 57.0 percent in 1989.

Table 4 *Percentage of students in Grades 1-12 who read no books in the month of May, 1971, 1979, 1981 and 1989*

Year of Survey	1971	1979	1981	1989
Elementary School	13.3%	10.3%	14.0%	10.5%
Junior High School	35.2%	38.5%	42.0%	41.9%
Senior High School	41.2%	47.9%	51.1%	57.0%

(*Source*: These figures are quoted from Fukuzawa, 1995, p.138. The survey was originally conducted by the Mainichi Newspaper Company.)

This trend seems contradictory when one considers the increase in accuracy of kana reading and writing over the past 21 years (Shimamura & Mikami, 1994) and the high acquisition rate of kanji (National Language Research Institute, 1988). If these figures are correct, it could be suggested that reading books does not necessarily improve kana and kanji acquisition. In addition to linguistic factors, other social and technological factors (e.g., time spent preparing for university entrance examinations, watching videos or playing computer games) should be taken into account to

identify reasons which might explain why students have stopped reading books. This contradictory question should be addressed in future studies of acquisition of the Japanese language among students, especially at the senior high school level.

Another surprising figure was reported by the National Language Research Institute (1989) in a study involving the type (type frequency) and overall accumulative (token frequency) ratio of words used for writing Japanese essays among students in Grades 1-6. There was no great change throughout Grades 1-6 in the grammatical type- and token-frequency of words (e.g., nouns, verbs, adjectives, conjunctions) used by students in writing essays. For example, the type-frequency of nouns in a text only varies within one percent, from 45.31 at Grade 5 to 46.55 percent at Grade 6. Likewise, the token-frequency of nouns varies from 63.63 percent in Grade 2 to 64.88 percent in Grade 5. Other grammatical categories also follow the same trend as nouns. Consequently, the similar type- and token-frequencies suggest that quantifying the words used according to grammatical type does not indicate the level of sophistication of texts written by students in Grades 1-6.

Once students have achieved a reasonably fast speed in word coding, its efficiency no longer distinguishes their overall language ability (Tamaoka & Takahashi, 1992). Using children with an English speaking background, Clipperton and Leong (1985) conducted a study involving different forms of humour: pictorial humour (cartoons) and verbal humour (riddles and jokes). They found that both grade-level and reading skills are influential

factors in comprehending humour. Likewise, forms of a humour which were related to a specific social- and cultural-context were much better understood by Japanese students with a high proficiency in English than those with a low proficiency (Tamaoka & Takahashi, 1994). Thus, a knowledge of social and cultural context should be included when teaching students with lower reading skills in order to compensate for difficulties with reading comprehension stemming from poor bottom-up processing of written materials.

A study involving reading proficiency (Leong & Carrier, 1986) was conducted to examine English-speaking students' understanding of lexical, surface and deep ambiguities. The poor readers experienced difficulties with ambiguity at the sentence level, especially deep structural ambiguity. In addition, a componential analysis of reading ability among Japanese-speaking students at Grade 5 conducted by Takahashi (in press) revealed that the level specific topical knowledge (i.e., baseball) held by students correlated very well with their reading comprehension in a specific topic area. These studies (e.g., Clipperton & Leong, 1985; Leong & Carrier, 1986; Takahashi, in press; Tamaoka & Takahashi, 1994) indicate that contextual knowledge strongly supports students' comprehension ability. Consequently, a contextual approach to language teaching should receive more emphasis, especially for those with low language proficiency.

Bilingual education has not received much attention in Japan which is regarded as a monolingual nation. After examining various cases of children who have shifted their schooling between Japan

and other countries, Ono (1994) recommended that it is better for children to be educated in a single language, at least during elementary school, in order that they "naturally" develop their intellectual cognitive abilities. According to Ono (1994), cognitive abilities should be well-established within a single language before learning a second language. In fact, Ono's suggestion (1994) nicely fits with the already-established education system in Japan: students start to learn English in Grade 7 when they seem to have already developed their cognitive abilities within the single language of Japanese.

Ono's comment, however, raises questions such as "Do children educated in two languages experience difficulties in developing cognitive abilities?" and, more precisely, "Is there any evidence that children in multilingual countries such as Singapore and Switzerland suffer from inadequately- or ill-developed cognitive abilities?" There is no such evidence. The educational curricula in those multilingual countries is designed to educate children to become bilingual (or even multilingual), and for this reason they do not seem to suffer from the "linguistic interference" which Ono (1994) describes.

As such, Japan has been very conservative in the development of policies and curricula in the area of bilingual education, despite the fact that the government has recently emphasized "internationalization" as a educational policy among Japanese schools and universities.

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